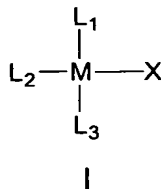


AMENDMENTS TO THE CLAIMS

1. (Original) A complex of formula I



wherein

M is Ca, Mg, Ba or Sr;

L_1 is selected from R^1O , R^2S , R^3R^4N , R^5R^6P , a substituted or unsubstituted cyclopentadienide and a substituted or unsubstituted pyrazolyl group, where R^{1-6} are each independently H or hydrocarbyl;

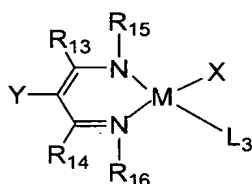
L_2 is selected from R^7R^8O , R^7R^8S , $R^7R^8R^9N$, $R^7R^8C=NR^9$, $PR^7R^8R^9$, or a substituted or unsubstituted heterocycle containing one or more O, N or S atoms, where R^{7-9} are each independently H or a hydrocarbyl group; or L_1 and L_2 are linked to form a bidentate ligand;

L_3 is absent or is a solvent molecule, or a neutral ligand as defined for L_2 , wherein L_3 may be the same or different to L_2 ; or L_3 is linked to a further metal centre; or L_1 , L_2 and L_3 are linked to form a tridentate ligand; and

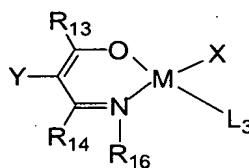
X is an alkyl group, an aryl group, an amide group, an aryloxide or an enolate group of formula $R^{10}R^{11}C=CR^{12}O^-$, wherein R^{10-12} are each independently H or hydrocarbyl;

with the proviso that when L_1 and L_2 are $\{HC(C(CH_3)=N-2,6-^iPr_2C_6H_3)_2\}$ and M is magnesium, X is other than Me or tBu .

2. (Original) A complex according to claim 1 wherein R^1 and R^2 are hydrocarbyl, and R^{3-6} are H or hydrocarbyl.
3. (Original) A complex according to claim 1 wherein R^1 and R^2 are each independently selected from branched or unbranched alkyl, branched or unbranched alkenyl, or aryl, each of which may be substituted or unsubstituted.
4. (Original) A complex according to claim 1 wherein L_1 and L_2 are linked to form a bidentate ligand selected from a beta-diketiminate and a beta-ketoiminate.
5. (Original) A complex according to claim 4 of formula II or III



II



III

wherein

Y is H, hydrocarbyl or CN;

R^{13-16} are each independently selected from H and hydrocarbyl; or Y and

R^{13} are linked to form a hydrocarbyl group; and

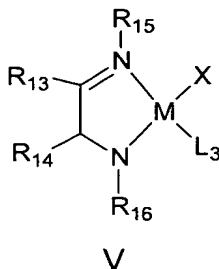
L_3 absent or as defined in claim 1.

(Original) A complex according to claim 5 wherein

Y is selected from H, CN, alkyl, aryl, haloalkyl or heteroalkyl;

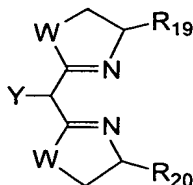
R^{13-16} are each independently selected from alkyl, aryl, heteroalkyl, haloalkyl, cycloalkyl and a heterocyclic ring containing at least one O, N or S atom; or Y and R^{13} are linked to form an aryl group; and L_3 is absent or is selected from R^7R^8O , R^7R^8S , $R^7R^8R^9N$, $R^7C=NR^8$, $PR^7R^8R^9$, thiophene and tetrahydrofuran, where R^{7-9} are each independently H or a hydrocarbyl group.

6. (Presently Amended) A complex according to claim 1 of formula V



wherein R^{13-16} are ~~as defined in claim 5 or claim 6~~ each independently selected from H, hydrocarbyl, alkyl, aryl, heteroalkyl, haloalkyl, cycloalkyl, and a heterocyclic ring containing at least one O, N or S atom, and where R^{13} and R^{15} are optionally linked to form an aryl group.

8. (Original) A complex according to claim 1 wherein L_1 and L_2 form a bidentate ligand of formula VIII



VIII

wherein

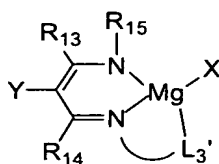
Y is as defined above;

W is O, NH, NR' or CH_2 where R' is hydrocarbyl; and

R^{19-20} are as defined for R^{13-16} above.

9. (Presently Amended) A complex according to ~~any one of claims 1 to 3~~ claim 1 wherein L_1 , L_2 and L_3 are linked to form a tridentate ligand.
10. (Original) A complex according to claim 9 wherein L_1 , L_2 and L_3 are linked to form a tridentate ligand selected from a beta-diketiminato with a pendant donor group, and a Schiff base derivative with a pendant donor arm.

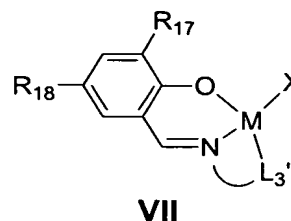
11. (Presently Amended) A complex according to claim 10 of formula VI



VI

wherein L₃' is defined as for L₃ in claim 1 is a solvent molecule or a neutral ligand, and is linked to the nitrogen of the bidentate ligand via a linker group.

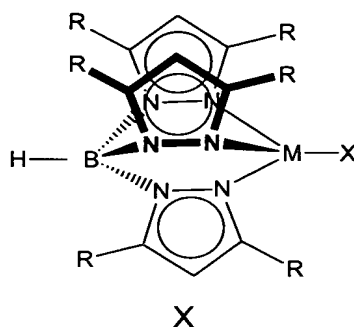
12. (Presently Amended) A complex according to claim 10 wherein said complex is of formula VII



wherein ~~L₃' is defined as for~~
~~L₃ in claim 1 a solvent~~
molecule or a neutral ligand
 and is linked to the nitrogen
 of the bidentate ligand via a
 linker group, and R¹⁷⁻¹⁸ are as
~~defined for R¹³⁻¹⁶ above each~~
independently selected from
H and hydrocarbyl.

13. (Presently Amended) A complex according to claim 11 ~~or claim 12~~
 wherein the linker group is (CH₂)_n where n is 0-6, an arylene group, or
 SiR₂, where R is hydrocarbyl.

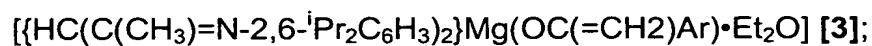
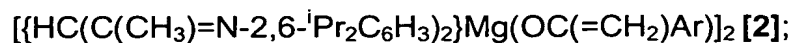
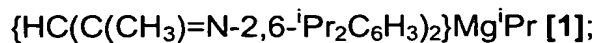
14. (Original) A complex according to claim 1 of formula X



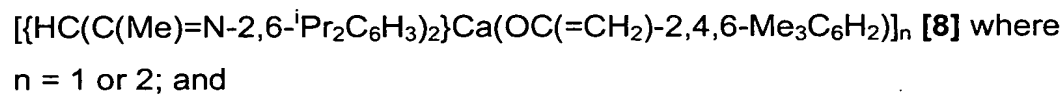
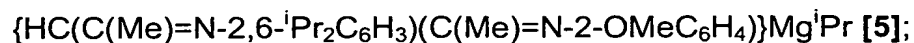
wherein each R is independently H or a hydrocarbyl group.

15. (Presently Amended) A compound according to ~~any preceding~~ claim 1 wherein X is an alkyl group
16. (Original) A compound according to claim 15 wherein X is ⁱPr.
17. (Presently Amended) A compound according to ~~any one of claims 1 to 14~~ claim 1 wherein X is an amide group.
18. (Original) A compound according to claim 17 wherein X is NPr₂.
19. (Presently Amended) A compound according to ~~any one of claims 1 to 14~~ claim 1 wherein X is an enolate group of formula R¹⁰R¹¹C=CR¹²O⁻, wherein R¹⁰ and R¹¹ are H and R¹² is an aryl group.
20. (Original) A compound according to claim 19 wherein X is -OC(=CH₂)Ar, wherein Ar is 2,4,6,-Me₃C₆H₂.
21. (Presently Amended) A complex comprising a dimer of a complex according to ~~any preceding~~ claim 1.

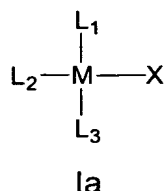
22. (Original) A complex according to claim 1 selected from the following:



wherein Ar = 2,4,6,-Me₃C₆H₂;



23. (Presently Amended) Use of A method of initiating polymerization comprising introduction of a complex of formula Ia as a polymerisation initiator,



wherein

M is Ca, Mg, Ba or Sr;

L_1 is selected from R^1O , R^2S , R^3R^4N , R^5R^6P , a substituted or unsubstituted cyclopentadienide, and a substituted or unsubstituted pyrazolyl group, where R^{1-6} are each independently H or hydrocarbyl;

L_2 is selected from R^7R^8O , R^7R^8S , $R^7R^8R^9N$, $R^7R^8C=NR^9$, $PR^7R^8R^9$, and a substituted or unsubstituted heterocycle containing one or more O, N or S atoms, where R^{7-9} are each independently H or a hydrocarbyl group; or L_1 and L_2 are linked to form a bidentate ligand;

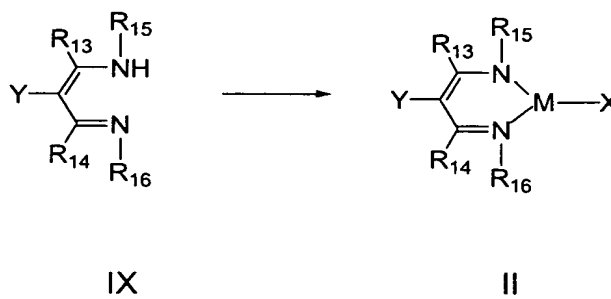
L_3 is absent or is a solvent molecule, or a neutral ligand as defined for L_2 , wherein L_3 may be the same or different to L_2 ; or L_3 is linked to a further metal centre; or L_1 , L_2 and L_3 are linked to form a tridentate ligand; and

X is an alkyl group, an aryl group, an amide group, or an enolate group of formula $R^{10}R^{11}C=CR^{12}O^-$, wherein R^{10-12} are each independently H or hydrocarbyl;

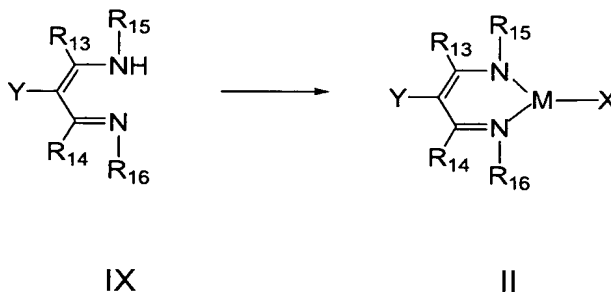
with the proviso that when L_1 and L_2 are $\{HC(C(CH_3)=N-2,6-^iPr_2C_6H_3)_2\}$, M is magnesium, X is other than Me or tBu .

24. (Presently Amended) ~~Use according to~~ The method of claim 23 in comprising the polymerisation of acrylate and/or alkyl acrylate monomers.
25. (Presently Amended) ~~Use according to~~ The method of claim 23 ~~or 24 which further comprises~~ comprising the use of a chain transfer reagent.
26. (Original) A process for the polymerisation of acrylate and/or alkylacrylate monomers, said process comprising contacting an initiating amount of a complex of formula Ia as defined in claim 23 with an acrylate and/or an alkylacrylate monomer in the presence of a suitable solvent.
27. (Original) A process according to claim 26 wherein the ratio of monomer to the complex is between 10:1 and 10^6 :1.
28. Cancel.
29. A composition comprising an acrylate and/or an alkylacrylate monomer and a complex of formula Ia as defined in claim 23.
30. A composition comprising poly(alkylacrylate) and poly(alkylmethacrylate) or copolymers thereof, and a complex of formula Ia as defined in claim 23.

31. A process for preparing a complex of formula II as defined in claim 5, where X is alkyl, said process comprising reacting a compound of formula IX with (a) $n\text{BuLi}$, and (b) XMgCl



32. A process for preparing a complex of formula II as defined in claim 5, where X is alkyl, said process comprising reacting a compound of formula IX with MgX_2



33. A process for preparing a complex of formula II, as defined in claim 5, where X is an enolate group of formula $\text{R}^{10}\text{R}^{11}\text{C}=\text{CR}^{12}\text{O}^-$, said process comprising reacting the product obtained from the process of claim 31 or claim 32 with a compound of formula $\text{HR}^{10}\text{R}^{11}\text{C}-\text{C}(\text{O})\text{R}^{12}$.

34. A method for producing polymethacrylate having greater than 75% syndiotacticity, said method comprising contacting methacrylate monomer with a complex of formula Ia as defined in claim 23 in the presence of a suitable solvent.
35. A method according to claim 34 which is carried out at a temperature in excess of -40°C .